

Fishes of the Tropical Central Pacific

By HENRY W. FOWLER

The collections reported in this paper are chiefly from Palmyra, Washington, Fanning, Christmas, Jarvis, and Tongareva (Penrhyn) islands. They were obtained in 1924. I also include a few specimens obtained by the Tanager Expedition at Johnston Island in 1924 and the Whippoorwill Expedition at Howland and Baker islands in 1924. All were sent by the Bishop Museum, together with a few local or small accessions. A duplicate set is retained by The Academy of Natural Sciences of Philadelphia.

EULAMIIDAE

Eulamia melanopterus (Quoy and Gaimard)

Christmas Island, May 2, 1 specimen, 655 mm.

Eulamia commersonii (Blainville)

Jarvis Island, August, one specimen, 674 mm. Back mouse-gray, becomes whitish on under surface. Fins like back and though pectoral same color below, terminally none of fins darker than back. Agrees with Snyder's figure of *Carcharias nesiotes*.

MOBULIDAE

Mobula japonica (Müller and Henle) (Plate I)

Cephaloptera japonica Müller and Henle: Systemat. Beschreibung der Plagiostomen, p. 185, 1841 (type locality, Japan).

Honolulu market, July 17, 1 specimen. The first adult to be reported. Head width 320 mm., mouth width 200 mm. Teeth bands extend to mouth angles, 84 rows above, 101 rows below. Head above, dark dusky-brown; below, creamy-white. Eye pale. Edge of lower lip and upper edge of snout neutral gray, also inner surfaces of cephalic fins.

The incomplete fragments reported as this species by Jordan and Evermann are unidentifiable. I place them with *Manta*.

Manta birostris (Walbaum) (Plate I)

Disk nearly twice as wide as long; tail broken terminally so now less than disk length. Pectorals rather narrowly triangular terminally, front edge slightly convex,

hind edge concave. No upper teeth; lower (in 139 rows in lower jaw) estimated about 280 in entire series lateral are about $\frac{3}{4}$ extent of lower jaw width. Body and tail rough with small tubercles; external thoracic region very rough, with enlarged, scattered, small bucklers, rasping to touch. Dorsal base extends slightly before front ends of pectoral bases. Ventrals small, obtuse, extend little beyond hind ends of pectorals and claspers still further. No caudal spine.

Back blue-black, with two V-shaped ashy bands, angles forming at vertebral line and pointed backward. Eyes black. White ventrally, with bluish wash along hind edges of fins. Deep blue spots scattered on belly and lower posterior surfaces of pectorals.

These notes from half the head, tips of pectorals, and tail of a specimen obtained with a harpoon off shore reef at Fanning Island, November, 30, 1924, by M. R. Kellum, Jr. Sketches, notes, and details supplied by Dr. Stanley C. Ball. The width of the head estimated at 700 mm. (half head width measures 350 mm.). Cephalic fin 300 mm. The distance from tip of snout to caudal base given as 112 cm. on Ball's sketch, also width of disk same. It would appear from the proportions that the dimensions are much greater or that this is intended as only half their length and half the width. The large intestine is noted with a spiral valve.

The figure of *Cephaloptera diabolus* Valenciennes¹ shows the spiracle correctly, though the pectorals are apparently too falcate. The ventrals are shown as not extending beyond the hind pectoral edges.

The species *Brachioptilon hamiltoni* Newman² is sufficiently described.

Another species, *Ceratoptera stelligera* (Hemprich and Ehrenberg) Hilgendorf³ is evidently the same as *Cephaloptera diabolus*, though admitted as a distinct species by Prof. Garman. The figure shows 140 rows of teeth in the lower dental plate. The head is apparently correct, like the figure by Valenciennes; and, though the tail is shown a little longer than the disk, it is shorter than indicated by Valenciennes. Hilgendorf gives a correct lower view of the head. The position of dorsal, length of the ventral and claspers are, however, as shown by Valenciennes and not like my specimen. The figure is also named *Cephaloptera ehrenbergii* Müller and Henle (Hemprich and Ehrenberg) Hilgendorf⁴.

The species *Ceratoptera orissa* Lloyd⁵ is described with a series of 370 teeth and each series transversely with 14. "Behind the dorsal fin is a remarkable globular swelling of the size of a man's fist," likely pathological. Width of mouth 55 cm. and band of teeth 47 cm. The specimen

¹ Valenciennes, A., and Cuvier, G. L., C. F. D., Les Poissons: Le Regne Animal, 3rd ed., pl. 119, 1839.

² Newman, E., The zoologist, p. 2358, 1849. West coast of Mexico.

³ Symbol, Physical, Zool., 1899, p. 7 (expl. plates), pl. 2, figs. 1-2, Red Sea.

⁴ Op. cit. p. 7, explanation of plates.

⁵ Lloyd, R. E., On two new species of eagle rays, with notes on the genus *Ceratoptera*: Indian Mus. Records, vol. 2, p. 176, fig. 1, pls. 5, 10, figs. 1, 2, 1908. Puri.

was "in an advanced stage of decomposition," so only a part was studied. It measured 1,140 mm. across the head from eye to eye. Color said to be dark greenish-gray, contrasting sharply with the white of the lower surface.

The drawing of *Manta birostris* by Baldwin, published by Jordan and Evermann⁶ is apparently a melange of previous figures. It does not show the spiracles. The ventrals do not extend posterior to the disk.

The species *Manta birostris* is evidently variable, with the teeth increasing in the series with age, thus the differences of the various counts. The specimen noted by Ball differs from any I can find in its coloration, possibly also a condition of youth. For the present I include all the nominal forms under *Manta birostris*. My specimen is of further interest in that the cephalic fins may be readily coiled.

ALBULIDAE

Albula vulpes (Linne)

Christmas Island, August 1 and 2, 5 specimens, length 335 to 390 mm.

CHANIDAE

Chanos chanos (Forskål)

Fanning Island, 2 specimens, 420 to 430 mm.; Christmas Island, August 5, 4 specimens, 210 to 450 mm.

ENGRAULIDAE

Engraulis purpureus (Fowler)

Honolulu market, 1925, 35 specimens, largest 65 mm.

CONGRIDAE

Conger bowersi (Jenkins)

Honolulu, March 2, 1925, 1 specimen, 160 mm.

OPHICHTHYIDAE

Myrichthys maculosus (Cuvier)

Washington Island, August 19, 1 specimen, 260 mm.; Howland Island, 1 specimen, 253 mm.

Ophichthus polyophthalmus Bleeker

Kuhei, Kahoolawe Island, June, 1925, by T. T. Dranga, 1 specimen. Length 426 mm., head severed from body. Spots as broadly bordered dark ocelli, with pale centers.

⁶ Jordan, D. S., and Evermann, B. W., The fishes of north and middle America: United States Nat. Mus. Bull. 47, pt. 4, pl. 18, 1900.

MORINGUIDAE

Aphthalmichthys abbreviatus Bleeker

Head 11; depth $33 \frac{2}{3}$ or $3 \frac{1}{8}$ in head; snout $9\frac{1}{2}$ in head measured from upper jaw tip; mouth cleft $4\frac{2}{5}$; eye about $4\frac{1}{3}$ in mouth cleft or $2\frac{1}{4}$ in snout; interorbital $1\frac{1}{5}$.

Body and tail subcylindrical, tail tapering abruptly compressed; tail $1\frac{7}{8}$ in combined head and body. Head robust, conic, sharply pointed, width 4 in its total length. Snout conic, width equals length. Eye small, center about last third in mouth cleft. Mouth moderate, lower jaw slightly protruding. Teeth uniserial, inclined backward; single row on vomer. Front nostril with low fleshy rim, near snout end; hind nostril large pore, large as pupil, close before eye. Interorbital convex. Gill opening long as snout. Skin smooth. Dorsal origin slightly before last fourth in total length, behind anal origin space equal to $\frac{2}{3}$ length of head; fin low and forms broad rounded end with caudal around end of tail. Anal similar, begins close behind vent. Caudal long as snout. Dull uniform brown above. Uniform pale brown below. Length 356 mm.

Tahiti, January 10, 1925, obtained by Dr. Ball from taro patch, 1 specimen.

ECHIDNIDAE

Echidna polyzona (Richardson)

Christmas Island, 3 specimens, 54 to 88 mm.

Echidna nebulosa (Ahl)

Howland Island, 5 specimens; Baker Island, 1 specimen; 86 to 270 mm.

Lycodontis picta (Ahl)

Fanning Island, November 12, G. P. Wilder, 1 specimen, 460 mm., July 30, 1 specimen, 650 mm.; Christmas Island, 1 specimen, 150 mm.; Jarvis Island, 1 specimen, 680 mm.; Tongareva, 7 specimens, 152 to 482 mm.; Howland Island, 11 specimens, 44 to 225 mm.; Baker Island, 3 specimens, 317 to 418 mm.; Honolulu, June 6, 1925, 1 specimen, 1016 mm.

Lycodontis meleagris (Shaw and Nodder)

Palmyra Island, 1 specimen, 118 mm.; Washington Island, 1 specimen, 78 mm.; Fanning Island, 3 specimens, 133 to 163 mm.; Tongareva, 6 specimens, 92 to 290 mm.; Howland Island, 13 specimens, 38 to 333 mm.

Lycodontis petelli (Bleeker)

Tongareva, December 26, 2 specimens, 88 to 105 mm. Like *Gymnothorax wailaluae* Snyder. Baker Island, 1 specimen, 420 mm.; Honolulu, 1 specimen, 848 mm.

Lycodontis flavomarginata (Rüppell)

Honolulu, June 25, 1925, 1 specimen, 760 mm.

Lycodontis undulata (Lacépède)

Fanning Island, July 30, 1 specimen, 373 mm.; Tongareva, 1 specimen, 155 mm.; Howland Island, 4 specimens, 52 to 60 mm.; French Frigates Shoal, June, 1923, 1 specimen, 145 mm.

Uropterygius tigrinus (Lesson)

Honolulu harbor, off Fort Armstrong, February 21, 1925, T. T. Dranga, 1 specimen, muzzle contrasted white.

Uropterygius concolor Rüppell

Palmyra Island, 2 specimens, 123 to 128 mm.; Canton Island, Phoenix Islands, March 15, 1924, 2 specimens, 102 to 110 mm.

Uropterygius marmoratus (Lacépède)

Christmas Island, 2 specimens, 120 to 413 mm.; Baker Island, 4 specimens, 432 to 510 mm.

SYNODONTIDAE

Synodus japonicus (Houttuyn)

Pearl and Hermes Reef, May, 1923, 1 specimen, 40 mm.; Midway Island, May 13, 1924, G. P. Wilder, 3 specimens, 22 to 42 mm.; Honolulu, May 2, 1925, 1 specimen, 200 mm.

BELONIDAE

Belone platyura Bennett

Christmas Island, 2 specimens, 338 to 347 mm. (beaks damaged); Baker Island, 2 specimens, 358 to 382 mm.; Honolulu, 1 specimen, 300 mm.

EXOCOETIDAE

Exocoetus volitans Linné

From aboard steamer "West Nivaria," April 23, 1924, A. D. Wallace, 2 specimens, 200 to 210 mm. (caudal damaged).

Cypselurus rondeletii (Valenciennes)

N. Lat. $6^{\circ} 40'$, W. Long. 171° . 1 specimen.

Head $3\frac{3}{4}$; depth $4\frac{3}{4}$?; D. 1, 10; A. 1, 10; scales 46 between gill opening and caudal base; 38? predorsal scales; snout $3\frac{4}{5}$ in head from snout tip; eye 3; maxillary $4\frac{1}{4}$; interorbital 3. Gill rakers 6+18, lanceolate. First and second pectoral rays simple or undivided, reach end of last dorsal ray depressed. Back brown, also caudal and dorsal. Lower surface, including ventrals and anal whitish, former with brownish longitudinal streak becoming pale terminally. Iris whitish. Pectoral brownish, becomes dusky terminally and most of median rays grayish white basally. Length 268 mm.

Also one flew aboard steamer between Seattle and Honolulu, April 30, 1925. D. 1, 14; A. 1, 9, 1; length 280 mm.

HOLOCENTRIDAE

Holocentrus lacteoguttatus Cuvier

Fanning Island, July 30, 2 specimens, 100 to 110 mm.; Baker Island, 2 specimens, 55 to 111 mm.; Laysan Island, by the Tanager Expedition, May, 1923, 1 specimen, 90 mm.

Holocentrus scythrops (Jordan and Evermann)

Honolulu, June 1925, 1 specimen.

Holocentrus sammara (Forskål)

Fanning Island, July 30, 1 specimen, 190 mm.

Myripristis murdjan (Forskål)

Fanning Island, July 30, 1 specimen, 210 mm.

Myripristis violaceus Bleeker

Head $2\frac{7}{8}$ to $3\frac{1}{10}$; depth $2\frac{1}{4}$ to $2\frac{1}{2}$; D. XI, 15, 1; A. IV, 13, 1; scales 27 or 28 in lateral line to caudal base and 4 more on latter; 4 scales above lateral line, 6 below, 9 predorsal; snout $4\frac{1}{3}$ to $4\frac{4}{5}$ from snout tip; eye $2\frac{1}{2}$ to $3\frac{1}{2}$; maxillary $1\frac{4}{5}$; interorbital $3\frac{2}{5}$.

Largely deep brown on back, scarcely paler below. Each scale with dark basal blotch. Upper marginal flap of opercle blackish. Length 195 to 208 mm.

Christmas Island, August 2, 2 specimens. They agree with Bleeker's figure.⁷ The species has not previously been reported from Oceania.

Myripristis adustus Bleeker

Christmas Island, August 2, 1 specimen, 270 mm.

Myripristis prasinus Cuvier

French Frigates Shoal, June, 1923, 1 specimen, 240 mm.

SYNGNATHIDAE

Hippocampus kuda Bleeker

Pearl Harbor, Oahu, July 27, 1924, C. B. Cooper, Jr., 1 specimen, 117 mm. Male with egg-pouch full of ova. Eye $2\frac{1}{5}$ in snout. D. 15, with dark submarginal band and fin placed on 2 trunk rings and 2 caudal rings.

ATHERINIDAE

Hepsetia insularum (Jordan and Evermann)

Honolulu, 2 specimens, 80 to 92 mm.

MUGILIDAE

Mugil vaigiensis Quoy and Gaimard

Head $3\frac{3}{5}$ to $3\frac{2}{3}$; depth 4 to $4\frac{3}{5}$; D. IV—I, 8, 1; A. III, 8, 1; scales 26 or 27 between gill opening and caudal base medially and 3 more on latter; 10 scales transversely, 16 or 17 predorsal; snout $3\frac{1}{10}$ to $3\frac{1}{5}$ in head; eye $4\frac{1}{3}$ to $4\frac{1}{2}$; mouth width $2\frac{3}{5}$ to $2\frac{3}{4}$; interorbital 2.

Head depressed above. Snout broad, also depressed. Eye center at first third in head, equals snout in profile, $2\frac{1}{4}$ to $2\frac{1}{3}$ in interorbital; without adipose-lids. Mouth would form obtuse angle as seen from below. Maxillary concealed. Teeth

⁷ Atlas ichth. Ind. Neerl., vol. 9, pl. 353 (1), fig. 2, 1877.

very minute. Preorbital finely serrated below. Interorbital flattened or but slightly convex. Gill rakers $38+57$, fine, slender, setiform, $11\frac{1}{2}$ in gill filaments, which $11\frac{1}{4}$ in eye. Scales with 6 basal radiating striae; apically with broad minutely rugose area; circuli fine. Soft vertical fins largely and densely covered with minute scales; 5 scales between depressed spinous dorsal tip and soft dorsal origin; no axillary pectoral scale. First dorsal spine 2 to $2\frac{1}{8}$ in head, inserted midway between eye center and caudal base; first ray $1\frac{3}{4}$ to $1\frac{4}{5}$, begins over middle of anal base. First anal ray $1\frac{3}{4}$; caudal 1, emarginate; least depth of caudal peduncle $2\frac{1}{5}$; pectoral $1\frac{1}{4}$; ventral $1\frac{2}{3}$ to $1\frac{3}{4}$, its axillary scale $2\frac{1}{8}$ to $2\frac{1}{6}$ in fin.

Back dull olivaceous, below whitish, all now with brassy tinge. Iris pale. Fins brownish, upper $\frac{2}{3}$ of pectoral neutral-blackish.

Christmas Island, August 6, 4 specimens, 285 to 340 mm.; Palmyra Island, 1 specimen, August 20, 172 mm.

Mugil cephalus Linné

Kaunakakai, Molokai, 1922, Ball and Edmondson, 2 specimens, 31 to 34 mm.; Ocean Island, D. Thaanum, 3 specimens, 27 to 32 mm. in Queri-mana stage; Honolulu, September 16, 1925, 1 specimen. Differs in the presence of but 7 branched rays in anal, simply a variant.

Mugil longimanus Günther

Mugil longimanus Günther: British Mus., Cat. Fishes, vol. 4, p. 428, 1861 (type locality, East Indies).

Head $3\frac{3}{4}$ to 4; depth $3\frac{2}{3}$ to 4; D. IV—I, 8; A. III, 9, 1; scales 31 to 33 between gill opening and caudal base and 4 or 5 more on latter; 12 scales transversely, 19 or 20 predorsal; snout $3\frac{4}{5}$ to 4 in head; eye $3\frac{1}{2}$ to 4; mouth width 3 to $3\frac{1}{5}$; interorbital $2\frac{2}{5}$ to $2\frac{1}{2}$.

Body long, compressed. Caudal well compressed, least depth $1\frac{1}{3}$ to $1\frac{1}{2}$ in its length or $2\frac{1}{3}$ to $2\frac{2}{5}$ in head. Head width $1\frac{2}{5}$ to $1\frac{1}{2}$. Snout broad, obtuse as seen from above, length half its width. Eye with hind edge midway in head length, diameter greater than snout, $1\frac{1}{2}$ in interorbital; adipose-lid well developed, posteriorly covering $\frac{1}{4}$ of eye. Maxillary hidden below preorbital, lower edge minutely serrated. Upper lip rather deep. No teeth. Mandible with slightly double symphyseal knob fitting in socket above, rami would form obtuse angle. Interorbital broadly convex. Gill rakers $40+50$, fine, slender, setiform, $1\frac{1}{4}$ in gill filaments which equal eye.

Scales with 6 basal radiating striae; apically membranous, though firm portion with obsolete radiating striae; circuli fine. Soft vertical fins finely scaled over basal half at least; 5 scales between tip of depressed spinous dorsal and soft dorsal origin. First dorsal spine $1\frac{3}{5}$ to $1\frac{2}{3}$ in head, inserted midway between snout tip and caudal base, first ray $1\frac{3}{4}$ in head; first anal ray $1\frac{3}{5}$ to $1\frac{2}{3}$; ventral $1\frac{1}{3}$ to $1\frac{2}{5}$; caudal deeply emarginate, $3\frac{1}{2}$ in combined head and body; pectoral $3\frac{7}{8}$ to 4, reaches opposite spinous dorsal or 11 or 12 of lateral scales, axillary scale $2\frac{2}{5}$ to $2\frac{4}{5}$ in fin.

Body largely with silvery reflections. Back nearly smoke-gray, whitish below. Fins all pale. Iris whitish. Length 142 to 195 mm.

Christmas Island, August 1, 3 specimens. These agree with Weber

and Beaufort's account.⁸ They show but a slight trace of a diffuse dark spot at the pectoral origin and not conspicuous as in Day's figure of *Mugil cunnesius*. This species not previously reported from Oceania.

Palmyra Island, August 20, 2 specimens, 193 to 200 mm.

***Mugil crenilabis* Forskål**

Head $4\frac{1}{5}$; depth $3\frac{2}{5}$; D. IV—I, 7, 1; A. III, 1; 9, 1; scales 41 between gill opening and caudal base medially; 12 scales transversely, 22 predorsal; snout 3 in head; eye $5\frac{1}{6}$; mouth width $3\frac{1}{8}$; interorbital 2; head width $1\frac{1}{4}$; first dorsal spine $1\frac{3}{4}$; first simple dorsal ray $1\frac{4}{5}$; first simple anal ray $1\frac{2}{3}$; least depth of caudal peduncle 2; pectoral $1\frac{1}{5}$; ventral $1\frac{3}{4}$; caudal $3\frac{3}{5}$ in combined head and body. Back and upper surfaces dull olive, below pale to whitish. Length 555 mm.

Baker Island, 1 specimen; Palmyra Island, August 20, 1 specimen, 325 mm.; Tongareva, December 26, 3 specimens, 34 to 36 mm.

***Neomyxus chaptalii* (Eydoux and Souleyet)**

Palmyra Island, 4 specimens, 100 to 233 mm.; Washington Island, 4 specimens, 242 to 273 mm.; Christmas Island, 8 specimens, 125 to 325 mm.; Tongareva, 82 specimens, 36 to 109 mm.; Baker Island, 5 specimens, 220 to 350 mm.

The largest shows:

Head $3\frac{7}{8}$; depth $3\frac{7}{8}$; D. IV—I, 8; A. III, 10; scales 43 between gill opening and caudal base, 15 transversely, 28 predorsal; snout 3 in head; eye $4\frac{1}{2}$; maxillary $3\frac{1}{3}$; interorbital $2\frac{1}{8}$.

***Myxus leuciscus* Günther**

Head $3\frac{1}{2}$; depth $4\frac{2}{5}$; D. IV—I, 7; A. III, 9; scales 35 between gill opening and caudal base, 11 transversely, 12 predorsal; snout 4 in head; eye 3; maxillary $3\frac{1}{5}$; interorbital $2\frac{7}{8}$. Largely silvery-white, back grayish. Fins pale. Length 34 mm.

Tongareva, in tide-pools of west shore reef, December 26, 1924. Though very young it has a single row of conic teeth in each jaw.

SCOMBRIDAE

***Germo sibi* (Schlegel) (fig.1)**

Head $3\frac{1}{5}$; depth $3\frac{3}{4}$; D. XIII—I, 11, 9, 9; A. II, 9, 9; snout $3\frac{1}{4}$ in head; eye 6; maxillary $2\frac{3}{5}$; interorbital 3.

Body fusiform, robust, little compressed. Head width $1\frac{4}{5}$ its length. Snout conic, long as wide. Eye anterior, high; lids free and not invading iris; diameter 2 in snout, $2\frac{1}{4}$ in interorbital. Maxillary reaches opposite eye center, expansion 2 in eye. Teeth in jaws simple, conic, small, uniform, uniserial; minute villiform teeth on vomer, palatines and tongue. Interorbital broadly convex. Gill rakers III, 9+21, $1\frac{3}{5}$ in gill filaments or equal eye. Corselet well developed, with largest scales over pectoral base; body scales generally very small, irregular and closely adherent; long scaly ridge of pectoral extends back nearly opposite soft dorsal origin. Lateral

⁸ Weber, Max, C. W., Beaufort, L. F. de, The fishes of the Indo-Australian Archipelago, vol. 4, p. 239, 1922.

keel on caudal peduncle well developed. First dorsal spine $2\frac{1}{2}$ in head, first branched ray $2\frac{2}{5}$; first branched anal ray $2\frac{1}{3}$; least depth of caudal peduncle $2\frac{2}{3}$ its greatest width or $1\frac{3}{4}$ in eye; upper caudal lobe $1\frac{1}{3}$ in head; ventral $2\frac{1}{2}$; pectoral long as head or $3\frac{1}{5}$ in combined head and body.

Above neutral-dusky, below silver-gray. Fins all more or less brownish, finlets pale or whitish. Paired fins and anal neutral-gray. Length 750 mm.

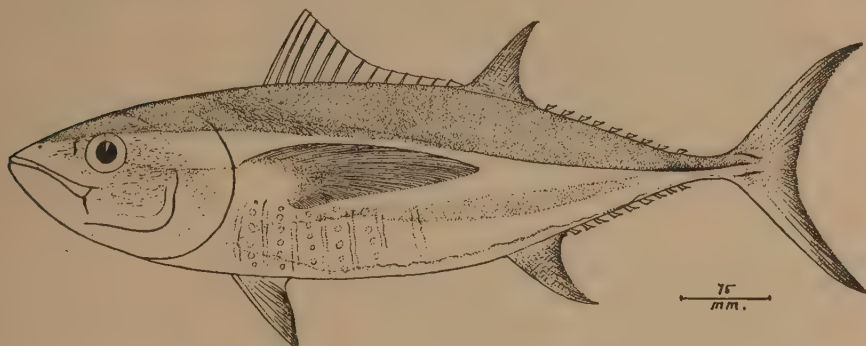


FIGURE 1. *Germon sibi* (Schlegel). Fanning Island.

Fanning Island, December 6, 1924, Dr. Wells, 1 specimen. According to Ball's color notes it showed the following:

Back blue-black. Lateral band of old gold, as light gold on side of snout, from eye to caudal peduncle keel. Cheek pearly. Iris light copper, upper eyelid edged light blue and lower liverbrown, with submarginal indigo arc. Branchiostegals iridescent copper, blue, green, and white. Chest copper and violet. From below pectoral base and back far as length of depressed fin 7 white vertical bars and row of 4 or 5 white spots in each interspace on tarnished silver ground, medially area light steel-blue. From about pectoral base to caudal peduncle keel light iridescent indigo, violet and copper streak, below rosy and violet. Belly pearl-white. Maxillary caerulean blue shading into pearl-white. Spinous dorsal with colorless membrane, spines yellow, brightest on first. Soft dorsal purple, tipped white at end of lobe, with submarginal yellow band and edge black, also yellow on fin-rays. Finlets all deep yellow, pinkish on body along bases. Soft anal like soft dorsal. Caudal edged fuscous, base of each lobe deep copper, lobes dingy yellow in front broadly bordered by deep yellow behind. Pectoral bluish-fuscous. Ventral white, rays golden, inner terminal edge pale blue.

In the original account *Thynnus sibi* Schlegel is described as blue, passing to pale blue on side and below; iris bluish-white with yellow pupil; fins blackish, with pale bluish borders; second dorsal, soft fins and caudal pass to olive-yellow terminally; anal mixture of pale rose, paler than other fins.

CARANGIDAE

Scomberoides sancti-petri (Cuvier)

Honolulu, 1 specimen, 333 mm., depth $4\frac{1}{5}$.

***Caranx ascensionis* (Osbeck)**

Christmas Island, December 12, 1924, James Kellum, 332 mm. Resembles Günther's figure of *Caranx melampygus* in almost every detail, except without dark spots on the back. Ball's notes describe this specimen as: "Light grayish-green dorsally, white beneath. Fins and tail violet. Five gold spots on tail above anal, 6 of same color below pectoral." Jarvis Island, August 9, 2 specimens, 397 and 640 mm. The larger shows: head $3\frac{2}{5}$; depth $2\frac{7}{8}$; D. VIII—I, 22, 1; A. II—I, 18, 1; scutes 25 in straight section of lateral line, arch $1\frac{2}{5}$ in straight section; snout $2\frac{4}{5}$ in head from snout tip; eye 5; maxillary $2\frac{1}{3}$; interorbital $4\frac{1}{3}$.

***Caranx sexfasciatus* Quoy and Gaimard**

Washington Island, 1 specimen, 235 mm.; Christmas Island, August 1, 5 specimens, 212 to 235 mm.; Baker Island, 2 specimens, 83 to 85 mm.

***Gnathanodon speciosus* (Forskål)**

Honolulu, May 16, 1925, 1 specimen, 190 mm.

***Trachinotus bailloni* (Lacépède)**

Head 4; depth $2\frac{1}{3}$; D. VIII, 22, 1; A. II—I, 22, 1; scales 90 in lateral line to caudal base and 12 more on latter, 25 above, 34 below; snout $3\frac{7}{8}$ in head from snout tip; eye $3\frac{7}{8}$; maxillary $2\frac{3}{4}$; interorbital $2\frac{7}{8}$.

Body elongately ovate, strongly compressed. Caudal peduncle strongly compressed, least depth equals its length or $2\frac{7}{8}$ in total head length. Head width 2 in its length. Snout obtuse, length $\frac{4}{5}$ its width. Eye with hind edge nearly median in head, equals snout or $1\frac{1}{4}$ in interorbital. Maxillary small, reaches opposite front pupil edge, expansion $2\frac{3}{4}$ in eye. Teeth in villiform bands in jaws, of 3 to 5 irregular rows; similar teeth in small patches on vomer and palatines; tongue smooth. Nostrils together, posterior larger, little nearer eye than snout tip. Interorbital convexly elevated. Gill rakers 9+16, lanceolate, equal gill filaments or 2 in eye. Scales rather large, become small and close-set on predorsal, breast and belly; 12 rows on cheek, head otherwise naked. Scales with 2 to 4 basal radiating striae, many 1 or 5 incomplete auxiliaries; circuli fine. First dorsal ray $1\frac{1}{8}$ in total head length; pectoral $1\frac{1}{3}$; ventral $2\frac{4}{5}$; first anal ray $2\frac{2}{5}$ in combined head and body length; caudal 2.

Back gray, below white, whole body and head washed with silvery. Dorsal and anal lobes dusky, rest of fin grayish. Outer portions and tips of caudal dusky. Paired fins pale.

Malden Island, December 21, 1925, 1 specimen, 332 mm. According to Dr. Ball's notes: "Many in the lagoon, which communicates by underground channel with the sea. Light blue gray above with 3 gray spots on lateral line." Christmas Island, 4 specimens, 250 to 275 mm.

CHEILODIPTERIDAE***Amia frenata* (Valenciennes)**

French Frigates Shoal, June, 1923, 2 specimens, 120 to 170 mm.; Kuhei, Kahoolawe Island, June, 1925, 1 specimen, 124 mm.

KUHLIIDAE

Kuhlia marginata (Cuvier)

Tahiti, from fresh-water pond, January 10, 1925, 3 specimens, 88 to 105 mm.

Kuhlia sandvicensis (Steindachner)

Fanning Island, 3 specimens, 28 to 70 mm.; Jarvis Island, August 4, 2 specimens, 260 mm.; Tongareva, 22 specimens, 30 to 115 mm.; Baker Island, 7 specimens, 131 to 280 mm.; Honolulu, May 8, 1925, 1 specimen, 70 mm.; Ocean Island, D. Thaanum, 1 specimen, 30 mm.

The large examples bright silvery-white, back grayish and caudal uniformly pale brown, only hind edge narrowly bordered dusky.

SERRANIDAE

Variola louti (Forskål)

Christmas Island, August 21, 1 specimen, 595 mm.

Cephalopholis sonnerati (Valenciennes)

Head $2\frac{3}{5}$; depth $2\frac{1}{2}$; D. IX, 15, 1; A. III, 9, 1; scales 130 along lateral line to caudal base and 10 more on latter; tubes 76 in lateral line to caudal base and 5 more on latter; 20 scales above lateral line, 40 below, 45 (?) predorsal; snout $3\frac{3}{5}$ in head from snout tip; eye $6\frac{1}{8}$; maxillary 2; interorbital $6\frac{1}{8}$. Brownish, but little paler below. Head and trunk everywhere with rather obscure mottling of darker, likewise fins.

Fanning Island, July 30, 1 specimen, 323 mm.

Cephalopholis argus Schneider

Palmyra Island, August 22, 2 specimens, 205 to 248 mm.; Jarvis Island, August 9, 2 specimens, 360 to 370 mm.; Tongareva, 3 specimens, 103 to 154 mm.

Cephalopholis miniatus (Forskål)

Fanning Island, July 30, 1 specimen, 318 mm.

Serranus fasciatus (Forskål)

Jarvis Island, August 9, 1 specimen, 350 mm. Black ring around eye and spinous dorsal edged black.

Serranus diacanthus Valenciennes

Head $2\frac{1}{2}$ to $2\frac{3}{5}$; depth $2\frac{3}{4}$ to $2\frac{4}{5}$; D. XI, 16, 1; A. III, 8, 1; scales 109 to 125 along lateral line to caudal base and 10 to 12 on latter; tubes 68 to 74 to caudal base and 12 to 20 more on latter; 17 to 20 scales above lateral line, 38 to 43 below, 62 to 77 predorsal; snout $4\frac{1}{5}$ to $4\frac{2}{5}$ in head from snout tip; eye $5\frac{2}{3}$ to $6\frac{1}{8}$; maxillary $2\frac{1}{5}$ to $2\frac{2}{5}$; interorbital $5\frac{2}{3}$ to $5\frac{4}{5}$.

Body ovate, compressed. Head width $2\frac{1}{4}$ to $2\frac{3}{4}$ in total head length. Snout conic, little broader than long. Eye center slightly behind first third in total head

length, $1\frac{1}{5}$ to $1\frac{1}{4}$ in snout, equals interorbital. Maxillary reaches opposite hind eye edge, expansion $1\frac{2}{5}$ to $1\frac{3}{5}$ in eye. Canines $\frac{1-1}{1-1}$, lower little larger; upper teeth with outer erect row and inner band of villiform teeth; lower teeth with outer erect row and inner depressible row; band of fine teeth on vomer and palatines. Nostrils close together, front one about last fourth in snout and hind one little higher and closer to front one. Interorbital convex. Hind preopercle edge serrate, with 2 serrae slightly enlarged at angle. Lower opercular spine posterior to upper and median slightly nearer lower than upper. Opercular flap pointed, triangular. Gill rakers v, $2+9$, v, little longer than gill filaments or $1\frac{7}{8}$ in eye.

Scales cycloid on head, ctenoid on trunk and tail. Maxillary nearly naked or with only traces of very few small scales on expansion. Scales with 5 or 6 basal radiating or marginal striae; apical denticles 29 to 40, with 1 to 4 transverse series of basal elements; circuli fine. Fourth dorsal spine much longer than last, $3\frac{1}{8}$ to $3\frac{2}{5}$ in total head length, fourth ray 3 to $3\frac{1}{10}$; third anal spine $3\frac{1}{2}$ to $3\frac{3}{5}$, third ray $2\frac{1}{8}$ to $2\frac{1}{5}$; least depth of caudal peduncle $3\frac{1}{5}$ to $3\frac{1}{3}$; caudal $1\frac{4}{5}$ to 2, truncate, convex as expanded; pectoral $1\frac{4}{5}$ to $1\frac{7}{8}$; ventral $1\frac{4}{5}$ to $2\frac{1}{4}$.

General appearance largely uniform, nearly prout's brown, becoming bistre to sepia on back. Fins all nearly clove-brown terminally, soft verticals and pectorals each with narrow whitish edge. Maxillary groove dusky, though no dark streak across cheek. Iris brown.

Jarvis Island, 2 specimens, 320 to 361 mm. These specimens agree largely with the accounts of Day and Boulenger, though without the dark transverse bands shown on Day's figure. The species is new to Oceania and was formerly known from the Persian Gulf to China and the East Indies.

Serranus corallicola Valenciennes

Fanning Island, 1 specimen, 204 mm.; Christmas Island, 4 specimens, 113 to 300 mm.

Serranus merra (Bloch)

Fanning Island, 6 specimens, 35 to 213 mm.; Christmas Island, August 3, 1 specimen, 140 mm.; Jarvis Island, 4 specimens, 217 to 305 mm.; Tongareva, 5 specimens, 134 to 233 mm. Howland Island, 30 specimens, 43 to 144 mm.; Baker Island, 3 specimens, 118 to 408 mm. The Baker Island specimens show:

Head $2\frac{1}{5}$; depth $3\frac{1}{2}$; D. X, 14, 1; A. III, 8, 1; scales 100 along lateral line to caudal base; tubes 53 indistinctly in lateral line to caudal base; 10 scales above lateral line, 22 below; snout $4\frac{1}{2}$ in head from snout tip; eye $7\frac{2}{3}$, $1\frac{3}{4}$ in snout, equals interorbital; maxillary $1\frac{9}{10}$, reaches middle of head, expansion $1\frac{1}{8}$ in eye; interorbital $6\frac{4}{5}$ in head from snout tip, broadly convex; dorsal spines subequal after fourth.

Serranus fuscoguttatus (Forskål)

Head $2\frac{1}{2}$; depth 3; D. IX, 14, 1; A. III, 8, 1; scales 107 along lateral line to caudal base and about 5 more on latter; tubes 47 in lateral line to caudal base and 3 or 4 more on latter; snout $4\frac{1}{2}$ in head from snout tip; eye $6\frac{1}{4}$; maxillary 2;

interorbital $6\frac{1}{3}$. Lateral mandibular teeth triserial anteriorly, biserial posteriorly. Maxillary densely scaled. Third to fifth dorsal spines much longer than last spine. Caudal rounded.

Fanning Island, July 30, 3 specimens, 325 to 403 mm. Very like Day's figure though the rayed vertical and paired fins finely spotted. Black saddle on caudal peduncle quite contrasted, though less than eye in size.

Odontanthias elizabethae Fowler

Honolulu, April 26, 1924, 1 specimen, 110 mm.

Pharopteryx nigricans Rüppell

Howland Island, 2 specimens, 117 to 148 mm.; Baker Island, 2 specimens, 134 to 138 mm.

LUTJANIDAE

Lutjanus marginatus (Cuvier)

Palmyra Island, August 22, 2 specimens, 244 to 248 mm.; Fanning Island, June 30, 2 specimens, 200 to 204 mm.; Jarvis Island, July 9, 4 specimens, 242 to 435 mm.

Lutjanus gibbus (Forskål)

Palmyra Island, August 2, 2 specimens 248 to 315 mm., body largely crimson-purple, dorsals and caudal dusky.

Lutjanus monostigma (Cuvier)

Palmyra Island, August 22, 1 specimen, 186 mm.; Washington Island, 1 specimen, 200 mm.; Jarvis Island, 3 specimens, 157 to 190 mm.; Baker Island, 8 specimens, 210 to 425 mm. The last specimen shows:

Head $2\frac{2}{3}$; depth 3; D. X, 13, 1; A. III, 8, 1; scales 60 along lateral line to caudal base and 3 more on latter; 6 scales above lateral line, 14 below, 13 predorsal; snout $2\frac{2}{3}$ in head; eye $4\frac{1}{2}$, $1\frac{2}{3}$ in snout, equals interorbital; maxillary reaches first $\frac{2}{5}$ in eye, $2\frac{1}{4}$ in head; interorbital $4\frac{3}{4}$; fourth dorsal spine $3\frac{2}{5}$, third ray $3\frac{1}{3}$; third anal spine $4\frac{2}{5}$, first ray 3; caudal $1\frac{1}{3}$; least depth of caudal peduncle $3\frac{1}{10}$; pectoral $1\frac{1}{3}$; ventral $1\frac{7}{8}$. Back olive, below white. Fins dull brown. Small black spot, about size of pupil, below front of soft dorsal.

LETHRINIDAE

Pentapus aurolineatus (Lacépède)

Christmas Island, July 31, 1 specimen, 268 mm.

KYPHOSIDAE

Kyphosus fuscus (Lacépède)

Washington Island, August 15, 1 specimen, 250 mm.; Howland Island, 1 specimen, 377 mm.; Baker Island, 1 specimen, 400 mm.

ERYTHRICHTHYIDAE

Erythrithys schlegelii Günther

Honolulu, June, 1925, 1 specimen, 220 mm.

MULLIDAE

Mulloides samoensis Günther

Christmas Island, 1 specimen, 91 mm.; Laysan Island, May, 1923, obtained by the Tanager Expedition, 1 specimen, 305 mm.

Upeneus multifasciatus (Quoy and Gaimard)

West reef at Laysan Island, May 12, 1923, 1 specimen, length 51 mm. It shows:

Head 3; depth $3\frac{7}{8}$; eye $3\frac{1}{3}$ in head, $1\frac{1}{5}$ in snout; maxillary reaches eye; barbels reach $1\frac{1}{2}$ to ventral origin. Teeth biserial. Gill rakers 25 on lower branch of first arch, slender. Scales 25 in lateral line to caudal base and 2 more on latter. Faded brown. Traces of dark blotch below spinous dorsal and another on caudal peduncle above.

Upeneus crassilabris Valenciennes

Head $2\frac{7}{8}$; depth $2\frac{7}{8}$; D. VIII—I, 8, 1; A. I, 6; scales 27 in lateral line to caudal base and 3 more on latter, 3 above, 7 below, 14 predorsal; snout $1\frac{4}{5}$ in head; eye $5\frac{4}{5}$; maxillary $2\frac{1}{10}$; interorbital $3\frac{1}{10}$.

Body deep, well compressed. Head width $2\frac{1}{3}$ in its length. Snout width $1\frac{3}{4}$ in its length, upper profile slightly concave. Eye with front edge midway in head, $3\frac{1}{4}$ in snout, 2 in interorbital. Maxillary reaches eye, expansion slightly greater than eye. Lips broad, Teeth short, broadly conic, uniserial, only present in jaws. Barbels short, not reaching beyond hind preopercle edge or $1\frac{3}{5}$ in head. Nostril at last $\frac{2}{5}$ in snout. Interorbital convex. Gill rakers 7+28, lanceolate, equal gill filaments or $1\frac{1}{4}$ in eye.

Scales mostly venulose or striated over exposures; basal radiating striae 6; apical denticles 198 to 208, with 7 to 9 transverse series of basal elements; circuli very fine. Third dorsal spine $1\frac{1}{3}$ in head, first ray $2\frac{1}{2}$ or little shorter than last ray; first anal ray $2\frac{2}{5}$, little shorter than last ray; least depth of caudal peduncle $2\frac{3}{5}$; caudal $1\frac{1}{5}$, forked; pectoral $1\frac{2}{5}$; ventral $1\frac{1}{4}$.

Head, trunk and upper front of tail more or less tinged with Indian-purple on certain scales and on most basally, producing somewhat mottled appearance. Lower surface of head, belly and front of tail below with olive-gray tinge. Lips dull brown. Barbels and branchiostegal membranes neutral-dusky. Dorsals dark neutral-grayish; last 2 membranes of spinous fin whitish, though rest of fin shaded darker terminally and with dull rosy tints basally; soft dorsal with 2 submarginal light gray lines, rest of fin with oblique gray lines and fin basally much darker. Anal gray-brown, with longitudinal grayish lines. Caudal peduncle very pale uniform brown. Pectoral pale brown, base dark. Ventral neutral-gray in front, becoming pale to light posteriorly, also dark anterior area with transverse grayish lines.

Jarvis Island, August 9, 1 specimen, 380 mm. It agrees with the Johnston Island specimen in the National Museum noticed by Smith and Swain. The peritoneum dark.

Upeneus barberinus (Lacépède)

Christmas Island, August 1, 3 specimens, 332 to 412 mm. The largest specimen shows:

Head $2\frac{7}{8}$; depth $3\frac{2}{5}$; D. VIII—I, 8, 1; A. I, 6; scales 27 in lateral line to caudal base and 3 more in latter, 3 above, 5 below, 11 predorsal; snout $1\frac{1}{2}$ in head; eye $8\frac{1}{4}$, $5\frac{2}{5}$ in snout, $1\frac{4}{5}$ in interorbital; maxillary $3\frac{1}{3}$ in head, expansion little greater than eye; interorbital $4\frac{1}{3}$ in head; barbels not reaching behind hind preopercle edge, $1\frac{3}{5}$ in head. Second and third dorsal spines elongated, flexible terminally and reach middle of soft dorsal base or base of fifth branched dorsal ray.

Upeneus bilineatus Valenciennes (fig. 2)

Upeneus bilineatus Valenciennes: Histoire naturelle des Poissons, vol. 7, p. 394, 1831 (type locality, Amboina). Günther, British Mus., Cat. Fishes, vol. 1, p. 411, 1859 (copied).

Parupeneus bilineatus Bleeker: Verh. Batav. Genootsch. (Bijd. Perc.), vol. 22, p. 4 (name only), 1849.

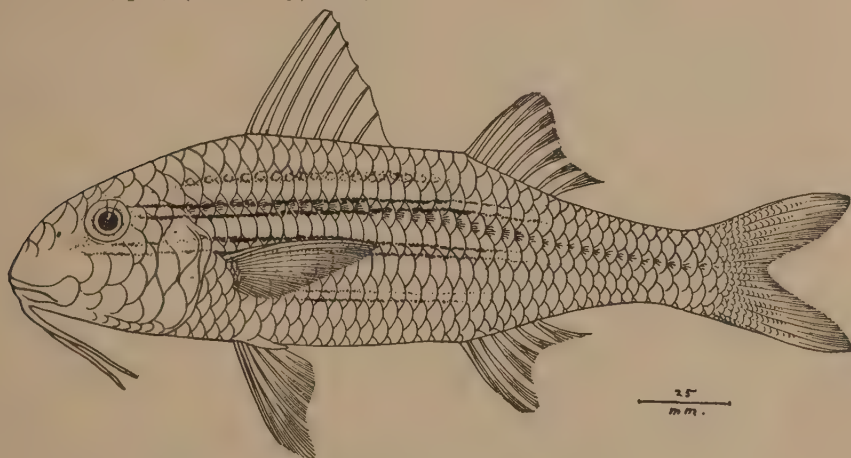


FIGURE 2. *Upeneus bilineatus* Valenciennes. Palmyra Island.

Head $3\frac{1}{3}$; depth $3\frac{1}{8}$; D. VII—I, 8, 1; A. I, 6, 1; scales 36 in lateral line to caudal base and 3 more on latter, 3 above, 6 below, 14? predorsal; snout $2\frac{1}{3}$ in head; eye $4\frac{1}{8}$; maxillary 3; interorbital $3\frac{1}{2}$.

Body elongate, compressed, back little elevated. Caudal peduncle well compressed, least depth half its length or $2\frac{2}{3}$ in head. Head width 2 in its length. Snout well convex in profile, also over surface, width $1\frac{1}{5}$ its length. Eye large, falls about midway in head length, $1\frac{2}{3}$ in snout, $1\frac{1}{5}$ in interorbital. Maxillary about reaches eye, expansion $1\frac{3}{4}$ in eye. Teeth small, simple, conic, uniform, form 2 rows above anteriorly and 5 below anteriorly; none on palate or tongue. Barbels reach hind opercle angle, $1\frac{1}{3}$ in head. Front nostril small, at last $2\frac{2}{5}$ in snout. Interorbital broadly convex. Gill rakers 8+22, lanceolate, $1\frac{3}{5}$ in gill filaments or $2\frac{1}{2}$ in eye.

Scales with 4 to 6 basal radiating striae; apical denticles 155 to 160, with 10 to 12 transverse series of basal elements; circuli very fine. First dorsal spine $1\frac{1}{3}$ in head, first ray $2\frac{1}{6}$; first anal ray 2; caudal $1\frac{1}{8}$, deeply forked, lower lobe longer; pectoral $1\frac{1}{3}$; ventral $1\frac{2}{5}$.

Largely dull brownish, back with slight olive tint and below paler. From upper postocular edge whitish band extends back to suprascapula and horizontally along upper side, crosses lateral line and ends below soft dorsal; second parallel similar band from lower eye edge back above pectoral base and ends at middle of front of caudal peduncle; also traces indistinctly of third parallel band from lower pectoral base back until above anal origin. Iris with reddish tinge. Barbels whitish. Fins all pale brownish. Apex of spinous dorsal grayish. Ventral and anal more whitish.

Palmyra Island, August 20, 1 specimen, length 232 mm. A very interesting species, not seen since originally described briefly from a small example but 77 mm. long from the East Indies. It is, therefore, another addition to the ichthyofauna of Oceania. Valenciennes gives the following items of color:

"Back brown, head and flanks rosy, abdomen white. Two yellow bands along flanks. First dorsal black at end and with 2 oblique olive lines. Second dorsal with 2 oblique olive lines. Anal, caudal, ventral, barbels, and lips yellow."

CIRRHITIDAE

Cheilodactylus vittatus (Garrett)

Honolulu, June 1925, 1 specimen, 270 mm.

Paracirrhites forsteri (Schneider)

Midway Island, May 13, 1924, G. P. Wilder, 1 specimen, 218 mm.

Paracirrhites cinctus (Günther)

Christmas Island, 1 specimen, 61 mm. Though poorly preserved not differing from other specimens from Oceania. It is like *Cirrhites murrayi* Regan⁹ which may be merged as a synonym. Garrett's figure, as published by Günther, shows the anal spines too short.

Paracirrhites arcatus (Cuvier)

Palmyra Island, 1 specimen, 55 mm.

Cirrhites marmoratus (Lacépède)

Washington Island, August 5, 1 specimen, 153 mm.; Fanning Island, 2 specimens, 195 to 201 mm.; Baker Island, 1 specimen, 165 mm.; Kuhei, Kahoolawe, June, 1925, T. T. Dranga, 1 specimen, 120 mm.

⁹ Regan, Charles Tate, A collection of fishes . . . at Christmas Island, Indian Ocean: Zool. Soc. London, Proc., p. 404, pl. 66, fig. 6, 1909.

CHAETODONTIDAE

Forcipiger longirostris (Broussonet)

Honolulu, 1 specimen, 158 mm.

Chaetodon setifer Bloch

Palmyra Island, August 22, 1 specimen, 175 mm.; Fanning Island, 1 specimen, 180 mm.; Christmas Island, August 2, 2 specimens, 125 to 145 mm.; Honolulu, 1 specimen, 75 mm.

Chaetodon lineolatus Cuvier

Honolulu, 1 specimen, 152 mm.

Chaetodon lunula Lacépède

Without locality, 1 specimen in *Tholichthys* stage, 25 mm. long.

Chaetodon punctato-fasciatus Valenciennes

Honolulu, 1 specimen, 93 mm.

Chaetodon fremblii Bennett

Honolulu, 1 specimen, 130 mm.

Chaetodon quadrimaculatus Gray

Honolulu, 1 specimen.

Holacanthus potteri Jordan and Metz

Honolulu, 1 specimen, 80 mm.

ACANTHURIDAE

Hepatus achilles (Shaw)

Washington Island, 4 specimens, 220 to 237 mm.; Jarvis Island, 4 specimens, 252 to 277 mm.

Hepatus fuliginosus (Lesson)

Jarvis Island, 1 specimen, 458 mm.; Palmyra Island, 2 specimens, 230 to 378 mm., (larger specimen with light grayish over most of tail, finely marked with waved longitudinal dark gray or neutral-gray lines); Fanning Island, 7 specimens, 165 to 373 mm. Ball's notes state it is common in the Fanning Island lagoon and reaches 400 mm.

He gives a color sketch showing:

Trunk with light blue spots on violet-purple grading into a blue ground-color on the tail with purple spots. Lower portion of tail light green, with some white blotches. Iris brown, surrounded by brown crescent above with an old gold bar in front. An old gold band across upper lip. Lower side of head, breast and abdomen till above front of anal slaty. Yellow line from mouth corner back and up along preopercle edge, another along edge of gill opening. Dorsals light blue-green, with

longitudinal bands, about 5, basal variously irregular or broken, of orange-yellow to old gold. Along body parallel and next to dorsal base line of silvery-blue, separated from general color of back by line of old gold. Anal light green, with 6 parallel bands or lines of old gold, and like dorsals outermost an old gold marginal line. Caudal white basally, fin largely violet and rays purplish basally. Pectoral yellow, upper edge narrowly dark yellowish and hind edge light yellow. Ventral membranes bluish, rays old gold.

One of the larger specimens from Fanning Island is without the dark longitudinal lines on soft dorsal and anal in alcohol. Its hind pectoral edge broadly yellowish. Ventral dusky terminally, pale basally. Otherwise color largely uniform dark drab-gray.

Hepatus glaucopareius (Schneider)

Fanning Island, 1 specimen, 217 mm.; Jarvis Island, August 2, 1 specimen, 220 mm.

Hepatus nigrofuscus (Forskål)

Christmas Island, August 5, 1 specimen, 288 mm. Caudal base with vertical gray band. Soft dorsal and anal with longitudinal bands.

Hepatus lineolatus (Valenciennes)

Washington Island, August 15, 4 specimens, 165 to 203 mm.; Jarvis Island, 1 specimen, 233 mm.

Hepatus triostegus (Linné)

Palmyra Island, August 21, 2 specimens, 134 and 135 mm., dark spot at pectoral base. Washington Island, 6 specimens, 123 to 142 mm., black spot at pectoral base. Fanning Island, 8 specimens, 30 to 165 mm., variable, some with black spot at pectoral base and others with dark bar representative of *sandvicensis*. Christmas Island, 8 specimens, 33 to 147 mm. Jarvis Island, 5 specimens, 158 to 193 mm. Howland Island, 75 specimens, 30 to 39 mm.; Acronurus stage. Baker Island, 12 specimens, 90 to 183 mm.

Hepatus guttatus (Schneider)

Washington Island, August 15, 4 specimens, 188 to 233 mm.; Jarvis Island, August 8-9, 2 specimens, both 265 mm.

Ctenochaetus strigosus (Bennett)

Fanning Island, 2 specimens, 204 to 229 mm.; Christmas Island, August 2 and 5, 4 specimens, 173 to 220 mm.; Jarvis Island, August 15, 1 specimen, 278 mm.; body, including pectorals, covered all over with fine blue-gray dots.

Zebрасoma veliferum (Bloch)

Honolulu, 1 specimen, 170 mm.

Acanthurus tuberosus (Lacépède)

Honolulu, 1 specimen, 210 mm.

SCORPAENIDAE

Sebastapistes asperella (Bennett)

Christmas Island, 2 specimens, 38 to 48 mm.

Sebastapistes albobrunneus (Günther)

Christmas Island, 1 specimen, 68 mm.; Howland Island, 10 specimens, 19 to 40 mm.

Pterois radiata Cuvier

Washington Island, August 1, 1 specimen, 80 mm. Howland Island, 1 specimen, 26 mm. Differs a little from Günther's figure in that it has a brown spot each side of snout tip, brown bar from lower front eye edge over maxillary and another over infraorbital and maxillary end. Moreover the fine brown transverse bands of the body extend up on vertical fins. Caudal with 3 blackish bands transversely, of which basal and median pale or obscure on middle of fin.

Pterois antennata (Bloch)

Marquesas Islands, through Père Delmas, 1 specimen, 92 mm. Not previously reported from these islands.

CARACANTHIDAE

Caracanthus maculatus (Gray)

Palmyra Island, 9 specimens, 27 to 35 mm.; Washington Island, August 19, 2 specimens, 28 to 38 mm.; Christmas Island, 11 specimens, 30 to 48 mm.; Howland Island, 3 specimens, 18 to 38 mm.; Malaekahana, Oahu, May 19, 1924, 2 specimens, 33 or 34 mm.

DACTYLOPTERIDAE

Dactyloptena orientalis (Cuvier)

Honolulu, 1 specimen, 275 mm.

PLEURONECTIDAE

Platophrys mancus (Broussonet)

Tongareva, 1 specimen, 247 mm.; anal rays 77.

Platophrys pantherinus (Rüppell)

Honolulu, May 8, 1925, 1 specimen, 148 mm., dorsal rays 90, anal 69.

POMACENTRIDAE

Dascyllus trimaculatus (Rüppell)

Johnston Island, July, 1923, 1 specimen, 95 mm.; French Frigates Shoal, June, 1923, 1 specimen, 110 mm.; Honolulu, October 28, 1925, 2 specimens, one 105 mm. Balls's notes give:

Blue-gray of pale shade generally. Scales edged with distinct band of fuscous. Darker tints on head, tail and anal. White spot on side of back below sixth to ninth dorsal spines. Skin beneath margins of scales contains band of some dark pigment, concentrated beneath center of tips to form 10 longitudinal bands parallel to lateral line but below its course, third broadest. Pectoral darker at base, membrane pale blue, rays anteriorly margined fuscous. Ventral with black membranes and rays blue-gray basally.

Chromis verater Jordan and Metz.

Honolulu, October 28, 1925, 1 specimen, 173 mm.

Pomacentrus nigricans (Lacépède)

Fanning Island, 1 specimen, 66 mm.; Howland Island, 4 specimens 26 to 79 mm. Largely blackish-brown, blackish blotch at pectoral origin and another large at last dorsal rays, dorsal spines 12. Baker Island, 1 specimen, 52 mm.

Pomacentrus inornatus De Vis

Laysan Island, west reef, May, 1893, 2 specimens, 95 mm.

Pomacentrus albofasciatus Schlegel and Müller

Christmas Island, reef in south bay, 1 specimen, 36 mm.

Pomacentrus aureus new species (fig. 3)

Head 3; depth 2; D. XII, 16, 1; A. II, 12, 1; tubes in upper section of lateral line 20, pores in lower section 11 to caudal base; 3 scales above lateral line, 11 below; about 25 predorsal scales; snout $3\frac{2}{5}$ in head; eye $3\frac{2}{5}$; maxillary $3\frac{1}{3}$; interorbital $3\frac{3}{4}$.

Body compressed, deeply ovoid. Caudal peduncle well compressed, little deeper than long or least depth 2 in head. Head width $1\frac{4}{5}$ in its length, upper profile little more convex. Snout conic, length $\frac{3}{4}$ its width. Eye moderate, long as snout, slightly greater than interorbital. Maxillary reaches eye. Lips moderate, entire. Teeth slender, compressed, rather long, tips rounded, uniserial. Nostril small, little nearer eye than snout tip. Infraorbital edge entire, though free. Preopercle with hind edge finely serrate, lower edge entire. Gill rakers about 20 (?), very short uniform points, greatly less than gill filaments.

Scales with 7 to 9 basal radiating striae; apical denticles 60 to 85, with 3 series transversely; circuli very fine. Scales extend forward on snout until little before nostrils, though lower preorbital and broad front margin of snout naked; 3 rows of scales on cheek below infraorbital with lowest row smallest on preopercle flange, also single row of scales on infraorbitals. Fins all more or less scaled basally, especially vertical ones. Tubes of lateral line large, pores small.

Last dorsal spine $1\frac{7}{8}$ in head, seventh ray $1\frac{1}{8}$; second anal spine 2, seventh

ray $1 \frac{1}{3}$; pectoral $1 \frac{1}{8}$; ventral $1 \frac{1}{10}$; caudal well forked, $3 \frac{1}{2}$ in combined head and body.

Back anteriorly nearly gallstone yellow, also upper surface of head, when fresh in alcohol. Side of head yellow. Pearly band from above end of maxillary along infraorbitals to postocular; another parallel on first row of cheek scales. Some large pearly spots on opercle. Lips light gray. On middle of side each row of scales with brown streak, forming oblique brown lines. Vertical fins, especially soft dorsal, anal and caudal, bright cadmium yellow. Upper edge of spinous dorsal very narrowly blackish. Pectoral and ventral little lighter yellow. Small black spot at origin of pectoral. Vent black. Black blotch, about size of pupil, behind last dorsal rays on caudal peduncle above.

Length 70 mm.

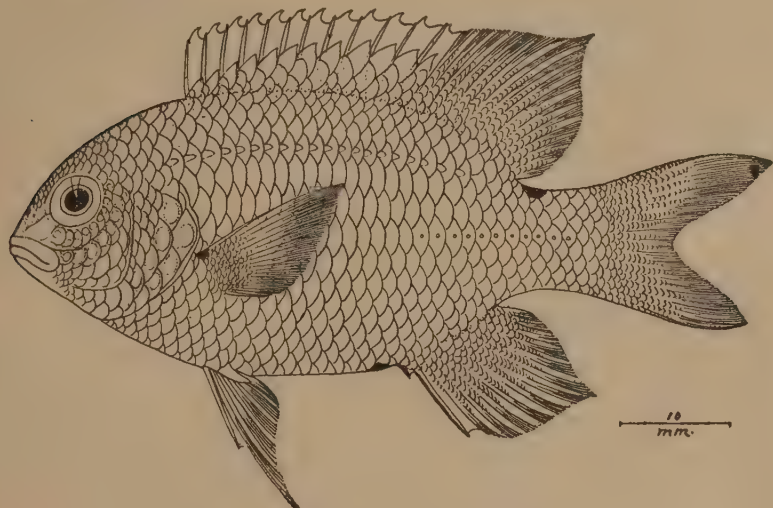


FIGURE 3. *Pomacentrus aureus*. Howland Island.

Type from Howland Island, Bishop Museum, Cat. No. 3425.

Paratype, 60 mm. long, same data.

This species resembles *Pomacentrus nigricans* (Lacépède) but differs at once in coloration. Compared with small examples of that species, both have the infraorbital edge entire though in *Pomacentrus nigricans* it becomes denticulate with age, though no specimens have the black post-dorsal blotch.

***Abudefduf sordidus* (Forskål)**

Palmyra Island, 4 specimens, 135 to 200 mm.; Fanning Island, 7 specimens, 30 to 205 mm.; Jarvis Island, 4 specimens, 133 to 235 mm.; Tongareva, 2 specimens, 40 to 105 mm.; Howland Island, 6 specimens, 28 to 84 mm.; Baker Island, 5 specimens, 158 to 207 mm.

Abudefduf septemfasciatus (Cuvier)

Fanning Island, 2 specimens, 190 to 195 mm.

Abudefduf notatus (Day)

Howland Island, 2 specimens, 26 to 32 mm.

These agree in most every way with Day's figure, though only the median pale band at all distinct. The pectoral shows the black blotch at the fin origin and the hind opercular membrane dusky. An interesting species, not previously reported from Oceania.

Abudefduf glaucus (Cuvier)

Christmas Island, 7 specimens, 30 to 80 mm.; Howland Island, 129 specimens, 16 to 45 mm, some show slight blue line on snout and even on interorbital each side; Baker Island, 4 specimens, 72 to 98 mm.

Abudefduf leucopomus (Cuvier)

Fanning Island, 8 specimens, 20 to 57 mm.; Tongareva, series of 93, 17 to 41 mm.

LABRIDAE

Lepidaplois modestus (Garrett)

Honolulu, 1 specimen, 510 mm. Ball gives the following:

Body wine-red, lighter on sides of abdomen. Purplish-brown on back, sending broad bar nearly to anterior basal third of anal, another covering caudal peduncle. Breast and lower half of head nearly black, mottled with wine color. No light spot on side below posterior base of dorsal. Iris silvery, pupil margined rose, except upper fourth yellow. No distinct dark blotch on front of spinous dorsal. Soft dorsal scarcely yellow. Pectoral dark wine-color at base, brighter on second ray, crossed by broad band of dark olive-green grading into lemon-yellow, tips of rays wine-color.

Stethojulis axillaris (Quoy and Gaimard)

Midway Island, May 13, 1924, G. P. Wilder, 1 specimen, 123 mm.

Halichoeres trimaculatus (Quoy and Gaimard)

Tongareva, 1 specimen, 163 mm.

Halichoeres margaritaceus (Valenciennes)

Christmas Island, reef in south bay, 1 specimen, 80 mm.; Howland Island, 11 specimens, 20 to 34 mm., quite faded, the smaller examples show the black ocellus on first membrane of spinous dorsal and one at front of soft dorsal. *PlatyGLOSSUS opercularis* Günther appears to be a synonym.

Halichoeres nebulosus (Valenciennes)

Christmas Island, 1 specimen, 90 mm.

Coris angulata Lacépède

Jarvis Island, 1 specimen, 380 mm. This species is usually known by the later name *Labrus aygula* Lacépède.

Anampses diadematus Rüppell

Fanning Island, 1 specimen, 250 mm.

Thalassoma purpureum (Forskål)

Fanning Island, August 22, 1 specimen, 190 mm.; Jarvis Island, 2 specimens, 239 to 355 mm.; Baker Island, 1 specimen, 240 mm.

Thalassoma duperrey (Quoy and Gaimard)

Honolulu, 1 specimen, 127 mm.; Howland Island, 1 specimen, 19 mm.

Of the Howland Island specimen, general color of head and body very pale pink-white. Broad blackish-brown band, wide as pupil, from side of snout, through eye and medially to caudal base, ending abruptly on bases of superomedian ray and not larger than rest of its extent. From front of interorbital dusky-brown band to spinous dorsal, which paler and likewise soft dorsal. Other fins all pale.

Thalassoma umbrostigma (Rüppell)

Washington Island, 1 specimen, 245 mm.; Fanning Island, 2 specimens, 70 to 105 mm.; Tongareva, 13 specimens, 20 to 50 mm.; Baker Island, 1 specimen, 190 mm.

Thalassoma lutescens (Bennett)

Malakahana, Oahu, C. Montague Cooke, 3rd, 1 specimen, 58 mm. Reddish band submarginally above and another below on caudal peduncle, also dark spot at caudal base superiorly.

Xyrichtys virens Valenciennes

Honolulu, 1 specimen, 152 mm.

Iniistius pavo (Valenciennes)

Honolulu, 4 specimens, 134 to 168 mm.

Hemipteronotus pentadactylus (Linné)

Honolulu, 2 specimens, 131 to 180 mm.

Hemipteronotus melanopus (Bleeker)

Honolulu, 1 specimen, 203 mm.

CALLYDONTIDAE

Leptoscarus vaigiensis (Quoy and Gaimard)

Honolulu, 1 specimen.

Leptoscarus viridescens (Rüppell)

Honolulu, 1 specimen, 275 mm. Largely dusky-brown. Pectoral base neutral-black. Hind caudal edge emarginate, narrowly white behind.

Callyodon hornosteli Fowler

Laysan Island, May, 1923, 1 specimen, 280 mm. Cheek scales biserial.

Canines $\frac{2-0}{1-0}$. Probably much duller red or old rose, but remaining scales greenish now. Dark neutral spot on first membrane of spinous dorsal. Agrees with the type on comparison.

Callyodon jonesi (Streets)

Palmyra Island, August 20, 1 specimen, 322 mm.

Callyodon dussumieri (Valenciennes)

Christmas Island, 4 specimens, 370 to 488 mm. These have canines

$\frac{2-2}{0-0}$, $\frac{1-0}{0-0}$, $\frac{3-3}{0-0}$. Fanning Island, in lagoon, December 4, 1 specimen, 379 mm. Ball gives:

Scales and head above light blue-green, each scale edged buff. Green band across front of interorbital, touches eye above and backward to suprascapula; postocular green line and another along lower eye edge. Upper lip green, lower purple, with submarginal lateral blotch of saffron-pink to latter. Teeth saffron-pink. Dorsals and anals saffron, edged with terminal and basal band of deep blue to blue-green. Caudal with submarginal band to each lobe, shading from gold to lavender. Pectoral green and along upper part of fin deep lavender band. Ventral pinkish, edged with light blue-green.

Callyodon pectoralis (Valenciennes)

Fanning Island, 1 specimen, 404 mm.; Jarvis Island, 1 specimen, 422 mm.

Callyodon rubroviolaceus (Bleeker)

Jarvis Island, 3 specimens, 305 to 377 mm. Smallest without canines,

others $\frac{2-1}{0-0}$ and $\frac{2-2}{0-0}$. Compared with the type of *Scarus calus* Fowler from Sumatra, which is synonymous. *Callyodon ruberrimus* Jordan and Seale is another synonym.

Callyodon dubius (Bennett)

Christmas Island, August 3, 1 specimen, 192 mm. Cheek scales largely triserial, of which 1 or 2 on each preopercle flange. No canines, lips largely cover teeth. Brown, little paler below. Dorsals with brownish marginal line.

ELEOTRIOAE

***Eviota epiphanes* Jenkins**

Tongareva, December 26, 12 specimens, 16 to 19 mm. Faded largely uniform brown, 2 or 3 dusky spots along upper and same along lower edge of caudal peduncle. Iris silvery. Fins all whitish.

***Eviota viridis* (Waite)**

Malaekahana, Oahu, July 5, 1925, C. Montague Cooke, 3rd, 3 specimens, 11 to 16 mm.; Howland Island, 51 specimens, 11 to 20 mm.; Christmas Island, August 1, 1 specimen, 14 mm.; Tongareva, December 26, 3 specimens, 12 or 13 mm.; Canton Island (Phoenix Islands), E. H. Bryan, Jr., 2 specimens, both 15 mm. *Eviota sebrei* Jordan and Seale is likely a younger stage. Possibly the East Indian *Eviota gymnocephalus* Weber¹⁰ is the same, as it greatly resembles the Howland specimens.

***Eviota caesiura* (Jordan and Seale)**

Tongareva, December 26, 1 specimen, 20 mm. Large, distinct scales on body and evidently at predorsal. Body generally faded brown with very fine pale gray dusting, though pinkish or rosy tinge general, especially about gill opening and sides of head. Eye above and upper postocular region bright rosy. Obscure band of gray dots from behind eye. Vertical fins dusted grayish, especially terminally, that of anal darkest.

Trimma caesiura Jordan and Seale is here placed with *Eviota*.

***Heteroleotris diadematus* (Rüppell)**

Mangrove swamp at Suva Bay, Fiji, June 26, 1924, 2 specimens, 25 to 27 mm.

GOBIIDAE

***Gobiodon citrinus* (Rüppell)**

Palmyra Island, 4 specimens, 28 to 35 mm.

***Paragobiodon echinocephalus* (Rüppell)**

Palmyra Island, 2 specimens, 23 to 25 mm. Christmas Island, 8 specimens, 19 to 29 mm.

***Microsicydium elegans* (Steindachner)**

Marquesas Islands, Père Simeon Delmas, 12 specimens, 19 to 28 mm.

***Glossogobius tongarevae* new species (fig. 4)**

Head 27/8; depth 5; D. VI—I, 5; A. I, 5; P. 18; VI, 5; scales 23 in lateral series 6 transversely; snout 4 1/5 in head from snout tip; eye 2 3/5; maxillary 2 1/2.

Body moderately long, compressed. Caudal peduncle compressed, least depth 1 1/5 in its length or 3 in total head length. Head width 1 2/5 in its length. Snout broad, length 2/5 its width. Eye large, greatly larger than snout. Maxillary

¹⁰ Weber, Max C. W., Siboga Exped., vol. 65, p. 452, fig. 87, 1913.

reaches opposite middle of eye. Lips broad. Teeth large, conic, little curved, biserial or even irregularly triserial in front of jaws; none on palate. Tongue notched in front. Nostrils close before eye. Interorbital reduced to narrow bony frenum separating large eyes. Gill opening vertical slit close before pectoral base, $3\frac{1}{2}$ in head length.

Scales with 15 or 16 basal radiating striae; single row of 23 to 27 apical denticles, larger externally; circuli moderate. Head with irregular papillae, especially on cheek. Head, predorsal, breast and pectoral bases naked. Scales on body large and in regular rows, and but few on caudal base, fins otherwise scaleless.

Dorsals separated, third spine $1\frac{7}{8}$ in head, sixth ray $2\frac{1}{8}$. Anal opposite second dorsal, first ray $2\frac{1}{3}$. Caudal pointed, with median rays longest, equals head. Pectoral $1\frac{1}{8}$; ventral $1\frac{1}{8}$, outer or lower edges of rays fringed.

Generally pale or light brownish in alcohol, below with whitish. Body with faint traces of scattered darker spots. Dorsals spotted with black and anal dotted with blackish, fins otherwise transparent. Upper caudal edge narrowly blackish and dark bar at base of fin transversely. Pectoral with dark blotch basally and largely below. Infra-orbital and front of cheek dusky.

Length 30 mm.



FIGURE 4. *Glossogobius tongarevae*. Tongareva Island.

Type, Bishop Museum, No. 3426, Tongareva Island, west shore-reef in tidepools, December 26, 1924, Stanley C. Ball,

Also 7 smaller specimens, paratypes, smallest 14 mm. These all less contrasted and paler. This species differs from *Glossogobius giurus* (Buchanan-Hamilton) in the larger eye, which much greater than the snout, and the coloration. It agrees in the widely separated gill opening, which lateral before pectoral.

(Named for Tongareva, sometimes called Penrhyn Island.)

***Bathygobius fuscus* (Rüppell)**

Christmas Island, August 1, 1 specimen, 30 mm.; Tongareva, December 26, 14 specimens, 17 to 34 mm.; Howland Island, 28 specimens, 14 to 78 mm.; Lisiansky Island, May 18, 1923, Tanager Expedition, 1 specimen, 41 mm.; Necker Island, June, 1923, Tanager Expedition, 2 specimens, 86 to 73 mm.; west reef of Laysan Island, May 5, 1923, 1 specimen, 23 mm.

Vitraria clarescens Jordan and Evermann

Tongareva, December 26, 1 specimen, 25 mm. Faded uniform dull brown. Dark vertical streak at pectoral base.

Zonogobius semidoliatus (Valenciennes)

Howland Island, 1 specimen, 12 mm.

ECHENEIDAE

Echeneis remora Linné

Baker Island, 1 specimen, 73 mm.; Canton Island (Phoenix Islands), March 15, 1924, E. H. Bryan, Jr., 1 specimen.

CALLIONYMIDAE

Calliurichthys decoratus Gilbert

Honolulu, 2 specimens, 140 to 230 mm.

BLENNIIDAE

Enneapterygius hemimelas (Kner and Steindachner)

Howland Island, 1 specimen, 25 mm. Lower half of head black, also gill-cleft before pectoral. Head reddish above. Caudal dusky. Laysan Island, April, 1923, 1 specimen, 31 mm.

Enneapterygius minutus (Günther)

Howland Island, 5 specimens, 13 to 22 mm. Top of head pink, rest of body pale translucent brown and some white longitudinally along sides medially.

Petroscirtes filamentosus (Valenciennes)

Fanning Island, August 12, 1 specimen, 60 mm. Seven pale basal spots on dorsals.

Cirripectes variolosus (Valenciennes)

Fanning Island, 2 specimens, 48 to 52 mm.; Christmas Island, 3 specimens, 38 to 60 mm.

Salarias saliens (Forster)

Latei, Tonga Island (Lau, Fiji), September 6, 1924, E. H. Bryan, Jr., 1 specimen, 73 mm.

Salarias marmoratus (Bennett)

Head $4 \frac{1}{8}$ to $4 \frac{1}{5}$; depth $4 \frac{1}{2}$ to $4 \frac{3}{5}$; D. XII, 16; A. I, 17 or 18; snout $2 \frac{2}{3}$ to 3 in head; eye 5 to $5 \frac{1}{5}$; maxillary 2 to $2 \frac{2}{3}$; interorbital $1 \frac{1}{4}$ to $1 \frac{3}{4}$ in eye.

Body well compressed, elongate. Least depth of caudal peduncle $2 \frac{1}{2}$ to $2 \frac{2}{3}$

in head. Head width $1\frac{1}{8}$ to $1\frac{1}{5}$ in its length. Snout broad, very blunt, profile oblique. Eye small, 2 to $2\frac{1}{3}$ in snout; supraorbital tentacle long as eye. Mouth very wide. Upper lip with short marginal fringe of papillae. Short conic canine each side below posteriorly. Interorbital narrowly concave. Short nuchal flap each side of occiput. Gill rakers as few short rudiments. Skin smooth. Dorsals deeply notched, soft fin beginning well behind anal origin; first dorsal spine $2\frac{1}{4}$ to $2\frac{3}{4}$ in head, fourth ray $1\frac{7}{8}$ to 2; anal edge deeply notched, often each ray, fifth $2\frac{1}{10}$ to $2\frac{1}{5}$; caudal truncate or rounded behind, $1\frac{1}{10}$, pectoral $1\frac{1}{10}$ to $1\frac{1}{5}$; ventral $1\frac{4}{5}$.

Brown generally, with 6 irregular dark crossbands, each as pair of blackish blotches along bases of dorsals most distinct, otherwise more or less broken and variously obsolete. Blackish oblique band on postocular region. Fins dull brownish, dorsals and caudal marbled or mottled with darker. Length 115 to 143 mm.

Necker Island, 1923, Tanager Expedition, 2 specimens; Laysan, 1923, Tanager Expedition, 1 specimen, length 140 mm.; Fanning Island, 4 specimens, 41 to 73 mm.; Tongareva, 3 specimens, 37 to 78 mm.

Salarias gibbifrons Quoy and Gaimard

Fanning Island, 9 specimens, 25 to 63 mm.; Tongareva, December 26, 2 specimens, 40 to 50 mm.

Salarias edentulus (Schneider)

Head $4\frac{1}{2}$ to $4\frac{4}{5}$; depth $4\frac{2}{5}$ to $4\frac{3}{4}$; D. XIII, 19 to 21; A. II, 20, 1 or 21, 1; lips entire; no lower canines; supraocular tentacle half of eye and small one each side at nape. Most all examples quite spotted.

Howland Island, 88 specimens, 28 to 130 mm.; Fanning Island, 14 specimens, 57 to 138 mm.; Christmas Island, 3 specimens, 75 to 78 mm.; Tongareva, 60 specimens, 24 to 141 mm.; Baker Island, 7 specimens, 90 to 117 mm.

Salarias zebra Vaillant and Sauvage

Lisiansky, May 19, 1923, Tanager Expedition, 1 specimen, 155 mm.; Necker Island, June, 1923, 2 specimens, 140 to 169 mm. These very dark and supraorbital cirrus $1\frac{4}{5}$ in head.

Salarias periophthalmus Valenciennes

Fanning Island, 13 specimens, 30 to 91 mm.; Christmas Island, 4 specimens, 25 to 73 mm.; Tongareva, 22 specimens, 25 to 58 mm.; Howland Island, 7 specimens, 43 to 60 mm.

Salarias lineatus Valenciennes

Tongareva, December 26, 10 specimens, 25 to 105 mm.

CARAPIDAE

Jordanicus caninus (Günther) (fig. 5)

Fierasfer caninus Günther, British Mus., Cat. Fishes, vol. 4, p. 383, 1862. No locality.

Head $6\frac{7}{8}$ to 7; depth $9\frac{1}{2}$ to $10\frac{1}{5}$; snout 4 to $4\frac{3}{4}$ in head; eye $4\frac{1}{5}$ to $4\frac{1}{4}$; maxillary $1\frac{4}{5}$ to 2; interorbital $4\frac{1}{8}$ to $4\frac{1}{5}$.

Body moderately slender, strongly compressed, thin, deepest anteriorly or at anal origin and long tail tapers back slender and narrow. Head width $2\frac{3}{4}$ to $3\frac{1}{3}$ in its length. Snout rather obtuse, convex, length $\frac{4}{5}$ to $\frac{7}{2}$ its width. Eye little greater than snout, equals interorbital. Maxillary extends well beyond eye or about midway in head. Pair of large, strong, curved canines in front of each jaw; row of very minute teeth along jaw edges and on palatines. Tongue small, pointed, slender. Interorbital slightly convex.

Gill rakers 3, rather long, slender, lanceolate, only on lower branch. Skin smooth, naked. Dorsal and anal begin opposite each other, latter much higher and both confluent with very short, inconspicuous caudal. Pectoral $1\frac{3}{4}$ in head, pointed.

Pale uniform brownish generally. Iris grayish.

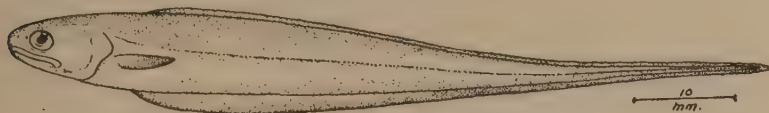


FIGURE 5. *Jordanicus caninus* (Günther). Christmas Island.

Christmas Island, from a pearl-oyster, 2 specimens, 70 to 75 mm. This species has apparently not been noticed since Günther's description was given in 1862. These specimens therefore definitely establish it in Oceania.

***Carapus parvibrachium* new species (fig. 6)**

Head 6; depth 6; snout 4 in head; eye 6; maxillary $1\frac{2}{3}$; interorbital 4.

Body deep, strongly compressed, deepest at anal origin, tail long, though tapers moderately to narrow point. Head width $2\frac{1}{2}$ in its length. Snout obtuse, length $\frac{4}{5}$ its width. Eye $1\frac{1}{4}$ in snout, $1\frac{1}{4}$ in interorbital. Maxillary reaches $\frac{3}{5}$ in head, far beyond eye. Lips rather broad and fleshy, especially lower. Pair of large, strong, curved canines in front of upper jaw, 4 below; along each jaw edge and palatine row of minute teeth. Tongue short, conic, thick. Interorbital little convex.

Gill rakers 3, rather long, slender, lanceolate, only on lower branch. Skin smooth, naked. Dorsal and anal begin opposite each other, latter much deeper and both confluent with inconspicuous small caudal. Pectoral short, $3\frac{2}{3}$ in head.

Dull brownish, dark uniform coloration doubtless largely due to formaline. Iris deep gray.

Length 81 mm.

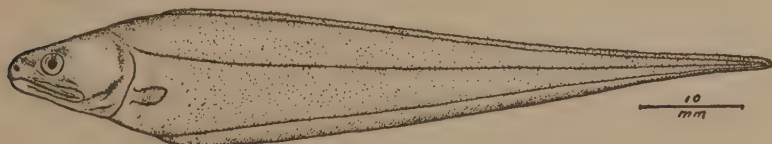


FIGURE 6. *Carapus parvibrachium*. Suva Bay, Fiji.

Type, Suva Bay, Fiji, caught in a clam shell, June 21, 1924. Bishop Museum No. 3427.

Paratype. 71 mm., same data.

The species is known by its compressed deep body, short pectoral and dentition.

(*Parvus*, small; *brachium*, arm, the homologue of the pectoral fin; for its short pectoral.)

BROTULIDAE

Brotula multibarbata Schlegel

Honolulu, 1 specimen, with abortive tail and showing head $2\frac{7}{8}$, depth $3\frac{3}{5}$.

BALISTIDAE

Balistes flavimarginatus Rüppell

Christmas Island, August 2, 1 specimen, 538 mm.

Balistapus undulatus (Park)

Malden Island, December 22, 2 specimens, 223 to 243 mm. Six oblique stripes, first triple and 3 forked near mouth.

Balistapus aculeatus (Linné)

Palmyra Island, August 21, 1 specimen, 223 mm.; Fanning Island, 1 specimen, 188 mm.; Tongareva Island, 1 specimen.

Odonus erythron (Günther)

Christmas Island, December 16, 1 specimen, 305 mm.; Fanning Island, July 1, 1 specimen, 333 mm.

CANTHIGASTERIDAE

Canthigaster jactator (Jenkins)

Laysan Island, April 21, 1923, Tanager Expedition, 1 specimen. Back and body, except abdomen, thickly marked with pale blue small rounded spots; 5 blue spots between eye and mouth; obscure black blotch below dorsal base with 1 or 2 bluish blotches. Length 80 mm.

TETRODONTIDAE

Tetrodon hispidus Linné

Fanning Island, November 28, 1 specimen, 194 mm.; Christmas Island, 6 specimens, 85 to 275 mm.; Howland Island, 1 specimen, 452 mm.

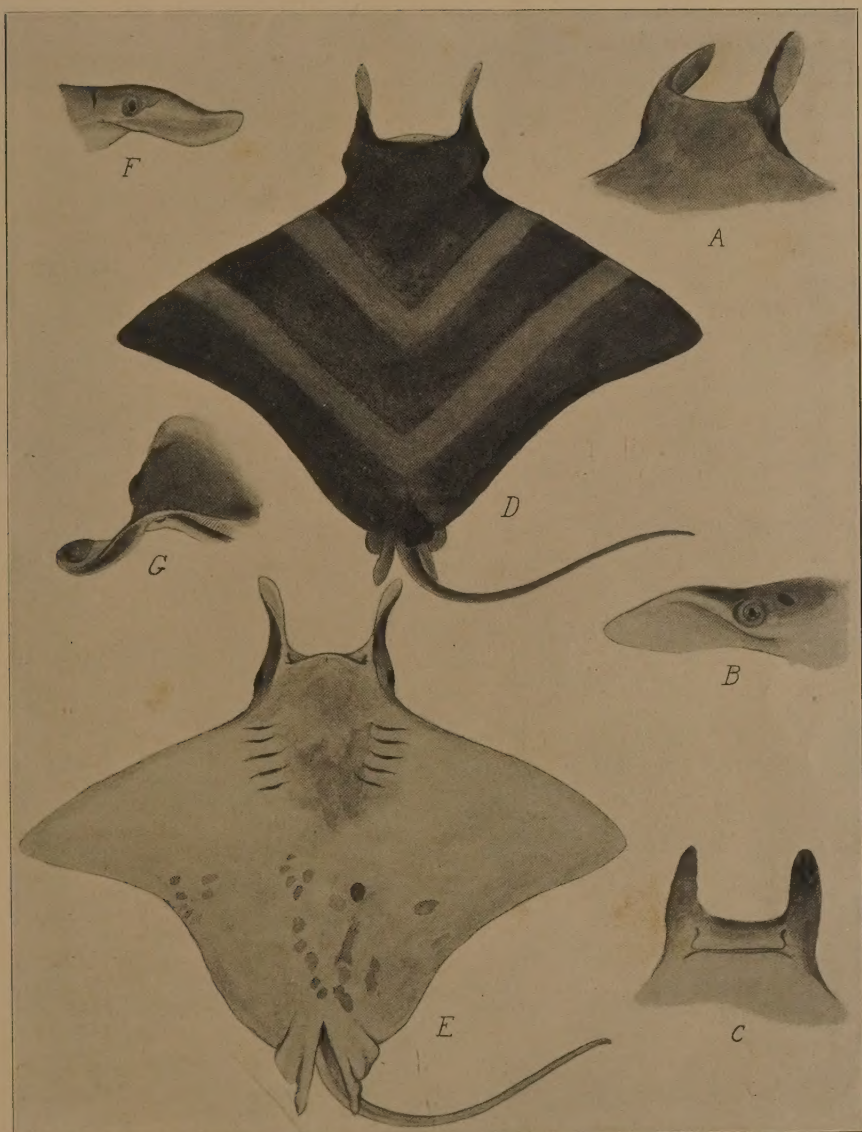
ANTENNARIIDAE

Antennarius commersonii (Shaw)

Christmas Island, 1 specimen, very poor, 35 mm. Whitish, marbled with deep brown. Though bait broken it only reaches base of second dorsal spine, evidently quite likely much longer originally.

Antennarius leprosus (Eyedoux and Souleyet)

Pearl Harbor, Honolulu, G. G. Fuller, 1 specimen, 82 mm.



A-C HEAD OF *MOBULA JAPONICA*: A, DORSAL VIEW; B, LATERAL VIEW; C, VENTRAL VIEW. FROM HONOLULU FISH MARKET, JULY 12, 1924. D-G *MANTA BIROSTRIS*: D, DORSAL VIEW; E, VENTRAL VIEW; F, RIGHT LATERAL VIEW OF HEAD; G, DORSO-LATERAL VIEW, SHOWING RIGHT CEPHALIC FIN FOLDED. DORSAL AND VENTRAL VIEWS IMPROVISED, IN PART, FROM SKETCHES BY STANLEY C. BALL, AND FROM PORTIONS OF THE PRESERVED SPECIMEN FROM FANNING ISLAND.

